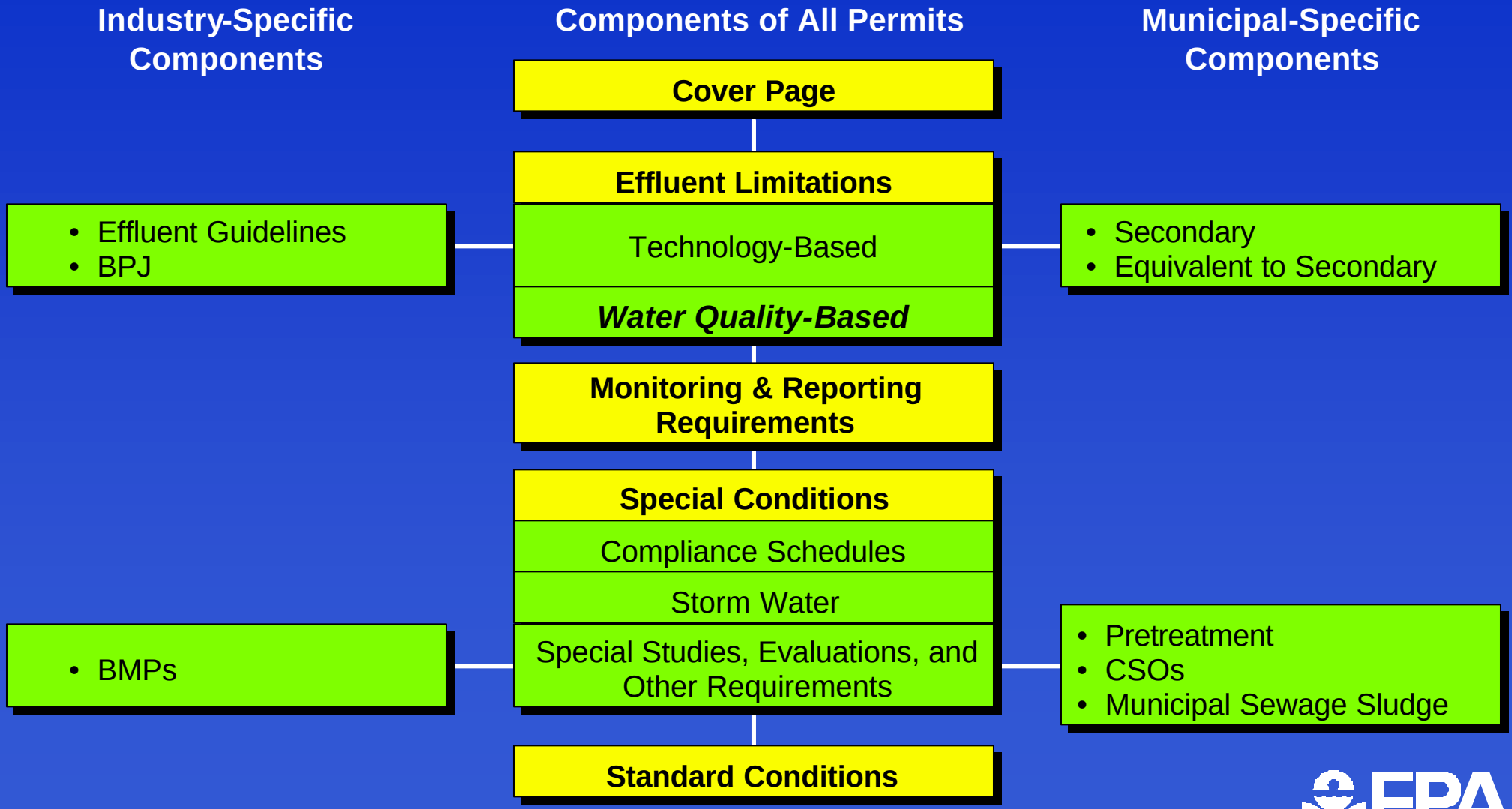
Overview of Water Quality Standards and Limitations

Permit Components



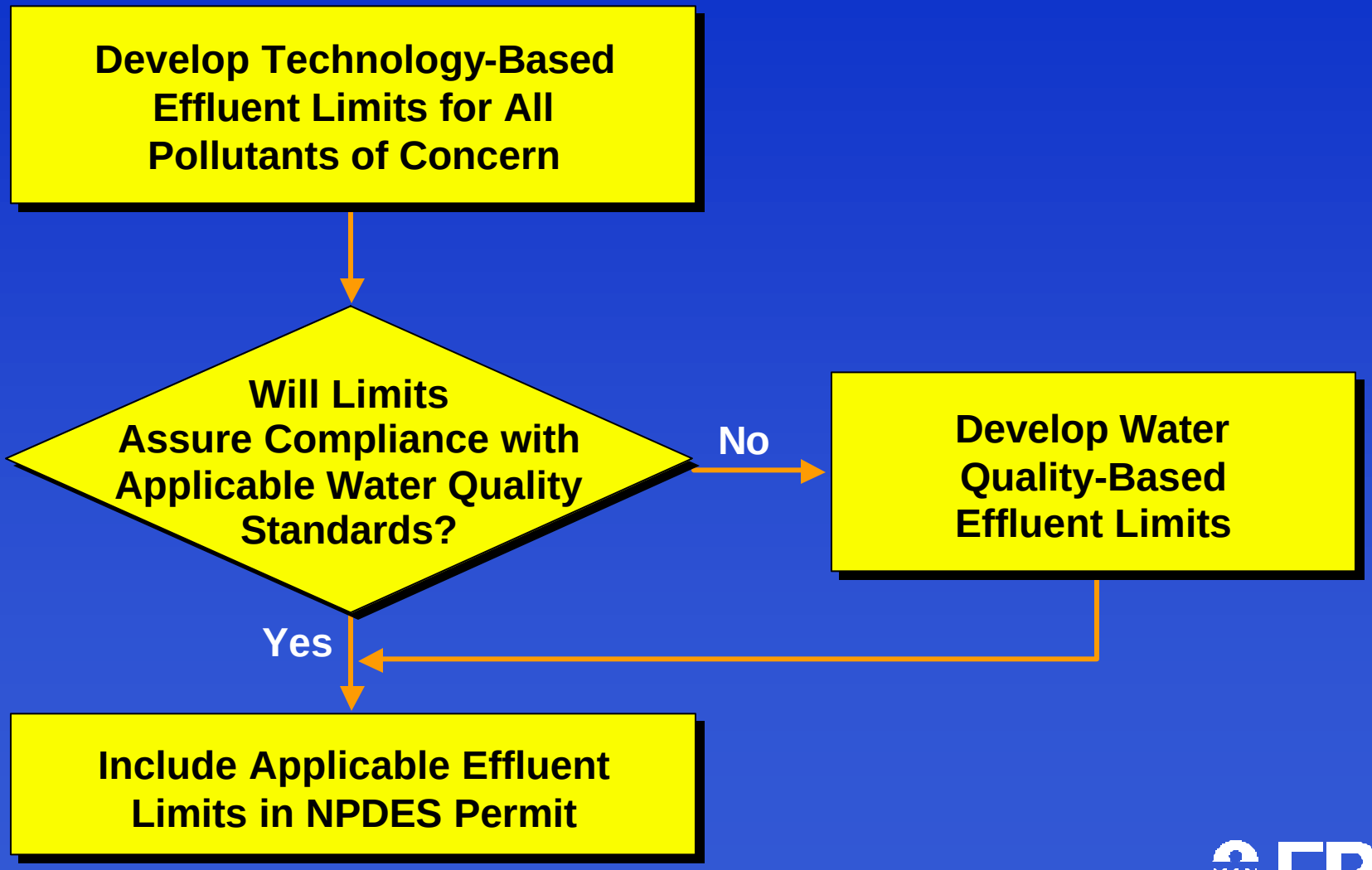
Learning Objectives

- Provide brief overview of water quality standards
- Discuss the relationship between water quality- and technology-based permitting
- Identify the objectives and components of water quality standards
- Describe the types of water quality criteria
- Explain the relationship between criteria and standards
- Explain the concepts for temporary or permanent modifications to standards

Clean Water Act Requirements

- **Section 101(a)(2)**
  - Establishes “fishable and swimmable” goal
- **Section 303(c)**
  - Establishes framework for water quality standards program
  - Requires States to establish water quality standards
- **Section 304(a)**
  - Requires EPA to develop and publish recommended water quality criteria
- **Section 301(b)(1)(C)**
  - Requires compliance with limits necessary to meet water quality standards

Developing Effluent Limitations



Water Quality Standards - 40 CFR Part 131

40 CFR §131.2

- A water quality standard defines the water quality goals of a waterbody, or portion thereof, by designating the use or uses to be made of the water and by setting criteria necessary to protect the uses.

Establishing Water Quality Standards

- States and Tribes are responsible for adopting water quality standards for all "waters of the U.S."
  - Water bodies
  - Segments of water bodies
- Standards are reviewed every 3 years (40 CFR §131.20)
- EPA has oversight authority
  - Review and approval (40 CFR §131.5, 131.6, 131.21)
  - Federal promulgation (40 CFR §131.22)

Components of Water Quality Standards

- **Designated uses** (40 CFR §131.10)
- **Water quality criteria** (40 CFR §131.11)
- **Antidegradation policy** (40 CFR §131.12)

Designated Uses - 40 CFR §131.10

- Requires that each State specify appropriate uses to be achieved and protected
- Common use categories
  - Public water supply
  - Fish and wildlife propagation
  - Recreation
    - Primary
    - Secondary
  - Agricultural
  - Industrial
  - Navigation

Designated Uses (Continued)

- Question: What if the designated use is not being attained? Can it be removed from the water quality standards?
- Answer: Depends on the type of use and the basis for the change

Existing Uses

Existing Uses …

- **are uses actually attained in the water body on or after November 28, 1975**
- **must be reflected in the water quality standards**
- **cannot be removed**

Removing a Designated Use
40 CFR § 131.10(g)

Designated Uses may be removed if ...

- **they are not existing uses**
- **attaining the use is not feasible, as demonstrated by a Use Attainability Analysis (UAA)**

Water Quality Criteria - 40 CFR §131.11

- **Numeric criteria**
  - Concentrations of chemicals
  - Aquatic Life
  - Human health
- **Narrative criteria**
  - Statements that describe the desired water quality goal
  - "Free from..."
    - Toxics in toxic amounts
    - Objectionable color, odor, taste, and turbidity

Types of Numeric Criteria

- **Aquatic Life Criteria**
  - Designed to protect aquatic organisms, including plants and animals
  - Two types
    - Acute
    - Chronic
  - Considers the magnitude, duration, and frequency of exposure to specific pollutants

Types of Numeric Criteria (Continued)

- **Human Health Criteria**
  - Single expression of the highest pollutant concentration not expected to pose significant long-term risk to human health
    - Based on chronic exposure via consumption of water and/or aquatic life
    - Accounts for bioconcentration or bioaccumulation

Types of Numeric Criteria (Continued)

- Biological Criteria
  - Diversity and disease
- Equilibrium Partitioning Guidelines
  - (Sediment) Quality

EPA Water Quality Criteria

- EPA responsible for establishing guidance and procedures
  - Establish and publish scientifically derived ambient criteria [CWA Section 304(a)]
    - 1968 Green
    - 1973 Blue
    - 1976 Red
    - 1980 Toxics
    - 1986 Gold
    - www.epa.gov/waterscience
  - Establish procedures for deriving criteria

Antidegradation Policy - 40 CFR §131.12

- Ensures that once a use is achieved it will be maintained
- Each State is required to adopt an antidegradation policy and method of implementation

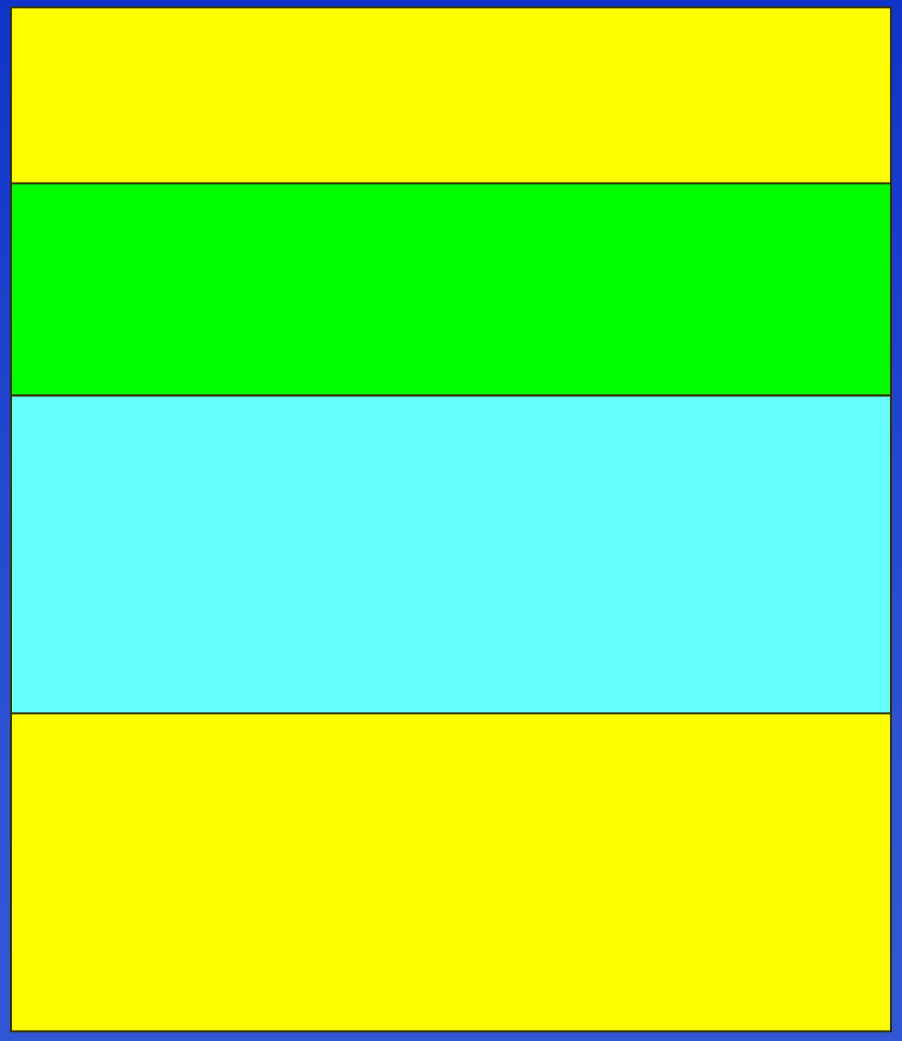
Antidegradation Policy (Continued)

- Three tiers
  I. Level of quality necessary to protect existing uses
  II. Protection of actual water quality where water quality exceeds levels necessary to protect fish and wildlife propagation and recreation on and in the water
  III. Special protection of waters designated as Outstanding National Resource Waters (ONRW)

Outstanding National Resources Water (ONRW)

- **Outstanding National Resources Water (ONRW)**
  - **National and State parks**
  - **Wildlife refuge**
  - **Ecologically unique water that need additional protection or are of special significance (i.e., swamps, hotsprings, etc.)**

Tiers of Antidegradation Policy



ONRW

TIER III

TIER II ½ ??

Better than Fishable / Swimmable

TIER II

40 CFR 131.12(a)(2

Existing Use

TIER I

Implementation of Water Quality Standards

- States must assess compliance with water quality standards for all water bodies
- If water quality standards are not being achieved, controls must be developed to achieve water quality standards
  - Point sources
  - Non-point sources

Permanent Modifications to Water Quality Standards

- **Site-specific modification of water quality criteria**
  - Permanent change in criteria
  - Designated uses maintained
- **Designated use reclassification**
  - Permanent change in water quality standard
  - Use and criteria change

Temporary Changes to Water Quality Standards (Variances)

- **Water quality standard variance**
  - Short-term and temporary change to standard
  - Basic water quality standards remain in place
  - Pollutant and discharger specific (sometimes same variance for entire water body)
  - Variances are not a required element of water quality standards, they are optional elements that States may adopt

Role of Permit Writers

- **Role of the Permit Writer should include establishing limits as stringent as necessary to attain Water Quality Standards.**